



PATENTS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

J. Alan Lawson et al.

Serial No.: **10/090,870**

Filed: **March 4, 2002**

For: **Electronic Field Apparatus and
Methods for Fluid
Decontamination and Other
Purposes**

Art Unit: **1731**

Examiner: **Steve Alvo**

DECLARATION UNDER 37 C.F.R. § 1.132

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

I, Mahendra R. Doshi, Ph.D., hereby declare that:

1. I am a currently employed as a Executive Editor at Progress in Paper Recycling.
2. I have over 25 years experience working in the field of pulp and paper, with an emphasis on decontaminating waste printed paper. I am a Fellow of the Technical Association of the Pulp and Paper Industry (TAPPI). A brief professional biography is attached hereto.
3. I have no particular financial interest in the above-referenced patent application.
4. I have reviewed the above-referenced patent application, the current claims, and the Office Action mailed May 10, 2005.
5. In my opinion, the cited *Jagannadh* reference (U.S. Patent No. 5,238,538) does not render obvious the presently claimed method of decontaminating a fluid comprising applying an electric field of between about 800 and about 6,000 volts per inch across the fluid, wherein

the anode comprises an elongated rod which tapers to a point in the direction of the cathode.

This is true for several reasons.

First, it does not appear that the equipment described in the *Jagannadh* reference could create electric fields of greater than 800 volts per inch. Special considerations for creating sufficient current to generate this high voltage would have to be made, such as altering the power source, electrode materials, shape and orientation, which were not suggested in the *Jagannadh* reference or routine in the art for this purpose.

Furthermore, there are surprising advantages for the use of these higher voltages that were unrecognized in the *Jagannadh* reference and only discovered and described in the present application. There is no teaching or suggestion in the *Jagannadh* reference that higher voltages can be used to achieve the improvements of fluid decontamination, fiber strengthening, reclamation and electrode cleaning described in the present patent application. The Examples show that voltages within the presently claimed range improve the decontamination of biologics (Example 1), wax from corrugated cardboard (Example 2), improve fiber strength (Examples 3 and 4), removal of flexographic ink (Example 5), microstickies (Example 6) and fiber reclamation (Example 7). Such advantages are highly desirable in the decontamination process, and would certainly have been suggested in the reference if the advantages of such higher voltages had been tested, possible or even contemplated by the prior art.

The *Jagannadh* reference teaches away from employing the advantages recognized by the use of substantially higher voltages of the present invention. The *Jagannadh* reference teaches that a cleaning brush, or other electrode cleaning means, must be used to dislodge ink particles from the cathode. (*Jagannadh* column 10, lines 39-64). However, the present invention

provides improved electrode cleaning during decontamination at a voltages above 800 volts per inch between the anode and the cathode (Specification page 14, lines 20-28). In particular, "the electro-potential cell is specifically designed to apply a voltage to a liquid as it flows through the device, while maintaining continuous electrode cleaning during operation." (Specification page 15, lines 16-19).

Therefore, in my opinion, the use of an anode that comprises an elongated rod which tapers to a point in the direction of the cathode to create the substantially higher voltages, i.e., between about 800 and about 6,000 volts per inch, than that used in the *Jagannadh* reference for fluid decontamination to achieve the above mentioned surprising advantages, is not at all an obvious or routine optimization of the process taught in the *Jagannadh* reference.

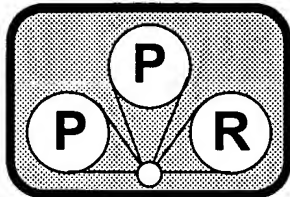
6. I declare that all statements made herein of my own knowledge and belief are true and that all statements made on information and belief are believed to be true, and further that the statements are made with the knowledge that willful false statements are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.



Mahendra R. Doshi

September 12, 2005

Date



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(Short Biography)

Doshi received B. S. degree in Chemical Engineering from Bombay University, India and M. S. and Ph.D. degrees also in Chemical Engineering from Clarkson University, Potsdam, NY.

Doshi joined the Institute of Paper Chemistry in 1977. Later, he formed his own company, Doshi and Associates, Inc. and then launched the publication of a quarterly journal, *Progress in Paper Recycling*. In addition to the highly respected journal, Doshi and Associates, Inc. offers education, publication, consultation and research services to the paper industry. Doshi has helped many mills in regard to problems related to wax, stickies and deinking.

Doshi is well known in the industry for his continuing education courses and seminars at central and company locations. Topics covered include Introduction to Pulp & Paper Technology, Introduction to Paper Recycling, Advances in Paper Recycling, Management and Control of Wax and Stickies and Refining of Chemical Pulps.

Over the years both TAPPI (leading Technical Association for the Pulp, Paper and Converting Industry) and PAPTAC (Pulp And Paper Technical Association of Canada) have invited Dr. Doshi to teach paper recycling continuing education course to the industry professionals.

Doshi was appointed 1995-1996 3M McKnight Distinguished Visiting Professor in Technology Development, Chemical Engineering, University of Minnesota at Duluth. In November 2004, Doshi was Visiting Professor at Australian Pulp and Paper Institute, Monash University, Melbourne, Australia.

Doshi edited the TAPPI PRESS anthology, *Recycled Paper Technology*, published in 1994. Doshi & Associates, Inc. has published several books including four volume series titled, Paper Recycling Challenge and Recent Advances in Paper Recycling – Stickies.

In November 2001, Doshi was recipient of The Pulp Manufacture Division Technical Award (the Division's highest technical award) as well as the associated Johan C. F. C. Richter Price in recognition of his contributions to TAPPI and the paper industry. In May 2004 Doshi was designated as TAPPI Fellow in recognition of meritorious service to the Association and the industry.